

Appl. No. 10/709,525
Amdt. dated March 22, 2006
Reply to Office action of January 13, 2006

REMARKS/ARGUMENTS

1. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (US20020027634) and of Saito et al (US 20030164903) in view of the prior art (Admission).

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Response:

Regarding Claim 1

Claim 1 recites a liquid crystal display (LCD) module comprising a housing comprising a plurality of openings formed in a lower surface of said housing, an LCD panel formed within said housing, said LCD panel comprising a display area, a peripheral circuit area formed on said LCD panel, and a plurality of driver integrated circuits formed in the peripheral circuit area of the LCD panel, and a flexible printed circuit board (FPCB) formed on the edge of the peripheral circuit area of the LCD panel, the FPCB having an extending portion and a plurality of light emitting diodes (LEDs) formed below the lower surface of the extending portion. The LEDs of the FPCB would be inset into corresponding openings of the housing when the extending portion of the FPCB crosses the edge of the LCD panel and being deflexed to the lower surface of the housing.

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In other words, the FPCB provided by the present application is used to bear the LEDs, and when the extending portion of the FPCB is deflexed to the lower surface of the housing, the LEDs are inset into the corresponding openings of the housing. Therefore, the FPCB and the LCD panel have a relationship of electrical connection between them, while the LEDs and the

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openings formed in the lower surface of the housing have a specifically corresponding relationship between in.

Although Kang et al. teaches a flexible base film 110 inclusive of a
5 printed circuit board engaging portion 112 to be engaged with the printed
circuit board 130 and a liquid crystal panel engaging portion 114 to be
engaged with the a liquid crystal panel 140. However, **the flexible base
film 110 is used to bear a driving IC 120, which is used to transfer
driving signals from the printed circuit board 130 to the liquid crystal
10 panel 140. Moreover, the mold frame 160 provided by Kang has no
openings formed in its lower surface. It is also noteworthy that Kang did
not teach electrical connection between the flexible base film 110 and
the back light assembly 150, nor teach any specific assembling
relationship between the backlight assembly 150, the liquid crystal
15 panel 140, and the mold frame 160.**

Secondly, Saito et al. teaches a liquid crystal display device
comprising a mold case MLD. The mold case MLD has receiving or
accommodation portions AV1, AV2 formed in the inner wall of a first side
20 edge LW1 for receiving light-emitting diodes used as light-emitting
elements. The examiner indicates that the mold case MLD is formed at the
bottom of the LCD, in the examiner's logic, the receiving portions AV1 and
AV2 are also formed at the bottom of the LCD, not the bottom of the mold
case MLD. The point is that the mold case MLD is a cannular structure
25 with receiving portions AV1 and AV2 formed in the inner side edge LW1
([0038]) and is an elastic supporting structure to hold a light guide body
GLB within. It is noteworthy that the mold case MLD provided by Saito
has no bottom, and the receiving portions AV1 and AV2 are formed in

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the side edge of the mold case MLD not at its bottom, as shown in Figs. 1, 4, and 7. Therefore applicant asserts that Saito has never disclosed "the plurality of openings formed at the bottom surface of the house".

5 According to page 4, [0048] of Saito, "the nails NL provided at the side wall leading end portion of the metal case SHC are folded toward the back face of the printed circuit board PCB and then caulking is applied thereto so that a liquid crystal display device is obtained in which the liquid crystal display panel PNL and the mold case MLD plus the printed circuit
10 board PCB contained in the metal case are integrally fixed together." Therefore the printed circuit board PCB provided by Saito is connected to the liquid crystal display device by another element, namely nails NL on a metal case SHC. Contrary to Saito, the FPCB provided by the present application is formed on the edge of the peripheral circuit area of the LCD
15 panel, and has an extending portion and a plurality of LEDs formed below the lower surface of the extending portion. The FPCB provided by the present application needs no other element to be connected to the LCD panel. Moreover, the FPCB is electrically connected to the LCD panel through the peripheral circuit while the printed circuit board PCB
20 provided by Saito is not electrically connected to the LCD panel PNL.

Therefore the applicant asserts that the claimed invention according to claim 1 is not obvious by modifying Kang' display to include Saito's LEDs and to further include the Admission's circuits by the one of ordinary skill
25 in art, and all the limitations recited in claim 1 are not taught or suggested by the combined reference teachings either. Reconsideration of claim 1 is politely requested.

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Regarding Claims 2-7

Claims 2-7 are dependent on claim 1 and should be allowed if claim 1 is allowed.

5 Regarding Claim 8

Claim 8 recites the LCD module of claim 1 further comprising a plurality of electrical components formed below the lower surface of the FPCB. Claim 8 depends on claim 1, which limits the light emitting diodes (LEDs) formed below the lower surface of the extending portion. Therefore
10 it is apparently that **the electrical components and the light emitting diodes are formed in the same side.**

Though the examiner has indicated that a plurality of electrical components formed below the lower surface of the FPC with a marked
15 drawing, the applicant would like point out that the back surface disclosed by Saito **infers the opposite face to the light-emitting diode LED ([0007])**. Therefore the applicant asserts that claim 8 is patentably differently from Saito et al, Kang et al, and the admission. Reconsideration of claim 8 is politely requested.

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Regarding Claim 9

Claim 9 recites a liquid crystal display (LCD) module comprising a housing comprising a plurality of openings *formed in a lower surface of said housing*, an LCD panel comprising a display area and a peripheral
25 circuit area, and a flexible printed circuit board (FPCB) connected to the edge of the peripheral circuit area, the FPCB having an extending portion and a plurality of light emitting diodes (LEDs) connected to the lower surface of the extending portion. *The extending portion of the FPCB*

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crosses the edge of the housing and the LEDs inset into the corresponding openings of the housing.

As mentioned above, the printed circuit board PCB provided by
5 Saito is connected to the liquid crystal display device by another
element, namely nails NL on a metal case SHC. The printed circuit board
PCB provided by Saito has no extension portion crossing the mold case
MLD. Compared with Saito, the FPCB provided by the present
application is connected to the edge of the peripheral circuit area on
10 the LCD panel without other elements.

Furthermore, according to the present application, the extending
portion of the FPCB crosses the edge of the housing and the LEDs
inset into the corresponding openings of the housing, which is formed
15 at the bottom of the housing. However, the receiving portions AV1 and
AV2 disclosed by Saito are formed at the side edge of the mold case
MLD, which is a cannular frame without bottom as shown in Figs. 1 and
4.

20 Therefore the applicant asserts that claim 9 is patentably differently
from Saito et al, Kang et al, and admission, and all the limitations recited
in claim 9 are not taught or suggested by the combined reference teachings
either. Reconsideration of claim 9 is politely requested.

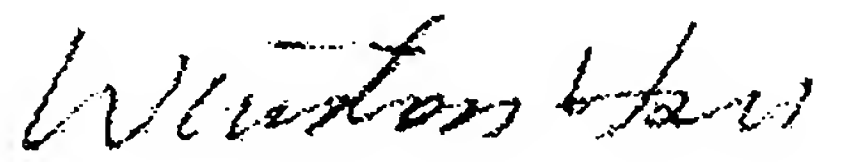
25 Regarding Claims 10-11

Claims 10-11 are dependent on claim 9 and should be allowed if claim
9 is allowed.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

5 Sincerely yours,



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15 is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)